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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,669	08/16/2001	Jun Zheng	PAT036US	3331

27543 7590 07/30/2003

APPLIED OPTOELECTRONICS, INC.
13111 JESS PIRTLE BLVD.
SUGAR LAND, TX 77478

EXAMINER

ZAHN, JEFFREY N

ART UNIT PAPER NUMBER

2828

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AT2

Office Action Summary	Applicant(s)	
	ZHENG, JUN	
	Art Unit	
	Application N .	
	09/931,669	
	Examiner	
	Jeffrey N Zahn	2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6,7,9-11,13-15,17,20,21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1, 3-4, 6-7, 9-11,13-15, 17, 20-21 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-4, 6-7, 9-11, 13-15, 17, 20-21 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claims 7, 9-11, 13-15 and 17, these claims improperly depend upon canceled Claims 5 and 16; accordingly, it is unclear/vague what the Applicant is claiming.

Regarding Claims 1, 22 and 23 it is unclear/vague what "material outside the active region" is being claimed and how it relates to the claimed device. In addition, the limitations of "adapted to be optically pumped" and "during optical pumping thereof" are indefinite; this provides no structure or structural cooperative relationships to establish what the Applicant is claiming. If the Applicant wishes to claim function without the recital of structure, 35 U.S.C. 112, 6th para., requires the use of a "means for" clause.

Finally, these claims recite a bottom mirror but no top mirror to establish the resonator cavity of the claimed laser structure. It is unclear/vague what the configuration of the claimed laser structure includes, i.e. where is the top mirror and how does the top mirror structurally cooperate with the other claimed structural features/limitations.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-4, 6, 20-21 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Uchida (US 6057560).

Regarding Claims 1, 3-4, 6, 20-21 and 23, Uchida discloses a device comprising:

a substrate (101);

a bottom mirror (102) disposed on the substrate;

an active region layer (104) (indefinite; comprising an active region and active region layer portions outside the active region, the active region layer portions outside the active region having a top surface,) the active region having a bottom and a top surface, (indefinite; wherein the active region is adapted to be optically pumped) and is disposed at its bottom surface (103; see Fig. 2) on the bottom mirror (Fig. 2) and the active region is for emitting light generated therein out of its top surface (col. 2, line 65- col. 3, line 8); and

a heat-spreading layer (105; 1.5um thickness) disposed directly on the top surface of the active region and on the top surface of the active region layer portions outside the active region, whereby some of the heat (inherent feature of InP as disclosed in the Application specification) generated in the active region during optically

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pumping thereof is conducted from the top surface of the active region into the active region layer portions outside the active region via the heat-spreading layer.

In addition, Uchida discloses a top DBR (106) and a bottom DBR (102) as claimed.

Note: The claims are given their broadest reasonable interpretation; accordingly, the InP layers (105 and 107) of Uchida lie outside the active region layer (103).

Response to Arguments

Applicant's arguments filed 12 May 2003 have been fully considered but they are not persuasive.

The Applicant has submitted that the claims as amended conform with 35 U.S.C. 2nd para.; this is unpersuasive for the reasons discussed above.

The Applicant argues that the mesa structure of Uchida does not disclose a structure that will facilitate the conduction of heat from the top of the active region into the InP layer above. This is unpersuasive because heat will be conducted in this fashion, even if the amount of heat conducted into the InP layers is small for the reasons discussed by the Applicant.

The Applicant argues that the laser structure disclosed by Uchida is not optically pumped as claimed by the Applicant. This is unpersuasive because the Applicant has not claimed the "optically pumping" of the claimed device in such a way to overcome issues of indefiniteness as discussed above; accordingly, this limitation has not been given the patentable weight.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey N Zahn whose telephone number is 703-305-3443. The examiner can normally be reached on M-F: 8:30-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Jeffrey Zahn
July 28, 2003


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